A Better Life by Design

Dr. Jaimie Borisoff, Canada Research Chair Rehabilitation Engineering Design

Canada Research Chair Dr. Jaimie Borisoff is dedicated to making the lives of those with disabilities better through rehabilitation engineering design. Rehabilitation engineering design looks at how people use devices in real life and, based on these observations, designs better versions.

One of these innovations is Dr. Borisoff's creation, the Elevation wheelchair. Light-weight and featuring adjustable seating, the Elevation wheelchair is a functional wheelchair that allows users to adjust their position to suit different daily activities.

"Most wheelchairs are designed as fixed frames," says Dr. Borisoff. "So you order a wheelchair, specify and configure it for yourself, and it's a static position that you end up sitting in. That has a lot of drawbacks, as you can imagine. A dynamic product is one that allows the user to adjust the seat, position, and other aspects of the wheelchair."

With this focus on dynamic wheel mobility, Dr. Borisoff is taking his Elevation wheelchair to the next level by adapting the technology to make it possible for users to bring the chair lower and closer the floor. With this adaptation, playing with children, changing a flat tire, or getting into the chair from a fall will become much easier. Beyond the physical, the updated design will significantly increase a user's ability to interact more fully with others, the environment, and their world.

Dr. Borisoff and his team work closely with wheelchair users, occupational therapists, and the International Collaboration on Repair Discoveries (ICORD) research centre to ensure that the end user gets the most benefit from their research.

"Rehabilitation engineering, by its definition, often involves users," explains Dr. Borisoff. "You try to have a user or user groups in the loop during your research cycle. We propose something, and then we get some feedback on it. Then, in the cases where we progress toward prototypes and things that they could actually touch, feel, and try, [we have them] try them out."

"Getting a product to market that has impact on people's lives is a goal of the lab."

Dr. Borisoff and his team are looking forward to exploring newer technologies like robotics and exoskeletons and seeking new ways to merge them in order to increase the ways in which technology can improve the lives of people with mobility issues.

"Just getting a product to market that has impact on people's lives is a goal of the lab and we had one success with the Elevation wheelchair already. Hopefully there'll be other ones down the road. That's the measuring stick and the goal is to design things that people find useful."